CLAIMS

What is claimed is:

1. A method for mitigating defect formation in a phosphosilicate glass layer, the method comprising forming an oxide cap upon the phosphosilicate glass layer via a chemical vapor deposition process.
2. A method for mitigating defect formation in a passivation layer of a semiconductor device, the method comprising:

   forming a glass layer upon a substrate; and

   forming a cap oxide layer upon the glass layer.
3. The method as recited in claim 2, wherein forming a glass layer comprises forming a phosphosilicate glass layer.
4. The method as recited in claim 2, wherein the substrate comprises a silicon substrate.
5. The method as recited in claim 2, wherein the substrate has at least one semiconductor layer formed thereon.
6. The method as recited in claim 2, wherein forming the cap oxide layer upon the glass layer comprises forming the cap oxide layer via a chemical vapor deposition process.
7. The method as recited in claim 2, wherein:

   forming the glass layer upon the substrate comprises forming the glass layer via a first chemical vapor deposition process;

   forming the cap oxide layer upon the glass layer comprises forming the cap oxide layer via a second chemical vapor deposition process; and

   wherein a reactor within which the first and second chemical vapor deposition processes are performed is not broken between the first and second chemical vapor deposition processes.
8. The method as recited in claim 2, wherein forming a cap oxide layer upon the glass layer comprises forming an undoped oxide layer upon the glass layer.
9. The method as recited in claim 2, wherein forming a cap oxide layer upon the glass layer comprises forming an undoped oxide layer upon a P doped oxide film.

10. The method as recited in claim 2, wherein at least one of the glass layer and the cap oxide is formed by a process selected from the group consisting of:

a plasma enhanced chemical vapor deposition process;

a sub-atmosphere chemical vapor deposition process; and

an atmospheric ambient chemical vapor deposition process.

11. The method as recited in claim 2, wherein the cap oxide layer is formed to have a thickness greater than 300 Angstroms.

12. The method as recited in claim 2, wherein a phosphorus blocking capability of the cap oxide layer is at least 11% by weight.

13. The method as recited in claim 2, wherein the cap oxide layer is formed by SiH_4 and N_2O reacting gases.

14. The method as recited in claim 2, wherein the cap oxide layer is formed by TEOS and O_2 reacting gases.

15. The method as recited in claim 2, wherein the cap oxide layer process temperature is between approximately 350°C and approximately 600°C.

16. The method as recited in claim 2, wherein the glass layer process temperature is between approximately 450°C and approximately 650°C.

17. The method as recited in claim 2, wherein forming the cap oxide layer comprises forming at least one of inter-layer dielectric, inter-poly dielectric and inter-metal dielectric layers.

18. A semiconductor device comprising:

a substrate;

a glass passivation layer covering at least a portion of the substrate; and

a cap oxide layer formed upon at least a portion of the glass passivation layer.

19. The semiconductor device as recited in claim 19, wherein the substrate comprises silicon.

20. The semiconductor device as recited in claim 19, further comprising at least one semiconductor layer formed upon the substrate.

21. The semiconductor device as recited in claim 19, wherein the glass comprises phosphosilicate glass.

22. The semiconductor device as recited in claim 19, wherein the cap oxide layer is formed to have a thickness greater than approximately 300 A.

23. The semiconductor device as recited in claim 19, wherein a phosphorus blocking capability of the cap oxide layer is at least 11% by weight.

24. The semiconductor device as recited in claim 19, wherein forming the cap oxide layer comprises forming at least one of inter-layer dielectric, inter-poly dielectric and inter-metal dielectric layers.